



Partial English translation of JP 61-50394 A

(Fig.4; page 3, lower left column, line 1 to lower right column, line 9 of the JP 61-50394 A)

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61-50934

With reference to FIG. 4, an embodiment of the production method of the present invention will next be described. A flexible substrate 19 includes a flexible resin film 20 which is made of a material such as polyimide or epoxy resin containing a glass filler and which has a length of several tens of meters and a width of 35 mm. Two rows of sprocket holes are provided along opposite longitudinal edges of the flexible resin film 20 so as to convey the film. Openings 22 for mounting semiconductor elements 1 are provided in the film, each opening having an area wider than at least each of the semiconductor elements 1. Leads 21 and 21' made of Sn-plated Cu foil are formed so as to extend to each opening.

As mentioned above, bumps 15 made of a material such as Au, Cu, Ag, or solder are formed in advance on each semiconductor element 1. The bumps 15 of the semiconductor element 1 are positioned with the leads 21 and 21' formed on a surface of the flexible resin film 20, and the semiconductor element is pressed against the leads with heat by means of a bonding tool 31 (see FIG. 4a). Through thermal

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pressing carried out by the bonding tool 31, the semiconductor element 1 is bonded to the leads 21 and 21'. After electric measurement has been performed in the state illustrated in FIG. 4(a), the flexible resin film 20 is cut by means of a punching die 32, to thereby produce chips having predetermined dimensions (see FIG. 4b). Specifically, when the punching die 32 is moved downward, the flexible resin film 20 to which semiconductor elements 1 are bonded is cut into chips as shown in FIG. 4(c).

Subsequently, a photocurable or heat-curable resin material (film) is applied, through coating (or affixing), to the space between each lead 21 provided on the flexible resin film 20 and an electrode of a display panel 10. The lead and the electrode are press-bonded together by means of a tool 33, followed by irradiation with light or heating, whereby a package product as shown in FIG. 4(d) is produced.

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## 特開昭61- 50394(4)

ので接続の信頼性が著しく高く、この接続箇所  
の減少により、従来必要としていた接続のため  
の覆装（面装）が不必要となるから実装面積が  
小さくなり、小型化・薄型化の商品的価値を高  
めることができる。

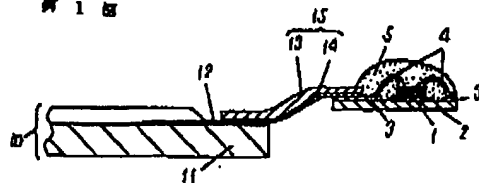
⑤ 長尺の可塑性樹脂フィルムに半導体素子を  
嵌合し、これを連続して所定の寸法に打抜き、  
ディスプレイパネルの電極に接合するのみであ  
るから、生産設備の投資が著しく少なく、実装  
コストが安価になる効果を有する。

## 4. 図面の簡単な説明

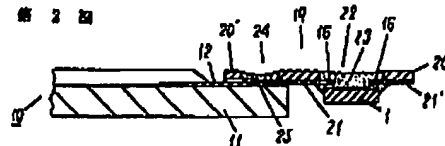
第1図は従来の実装体の構成断面図、第2図は  
本発明の一実施例の実装体の構成断面図、第3図  
は本発明の他の実施例の実装体の構成断面図、第  
4図(a)~(d)は本発明の一実施例の実装体の製造  
方法を示す工程断面図である。

1……半導体素子、10……ディスプレイパネル、12……ディスプレイパネルの電極、15……  
突起、20……可塑性樹脂フィルム、21、21'……  
リード部、リード。

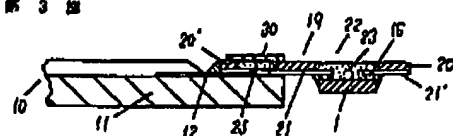
第 1 図



第 2 図



第 3 図



第 4 図

